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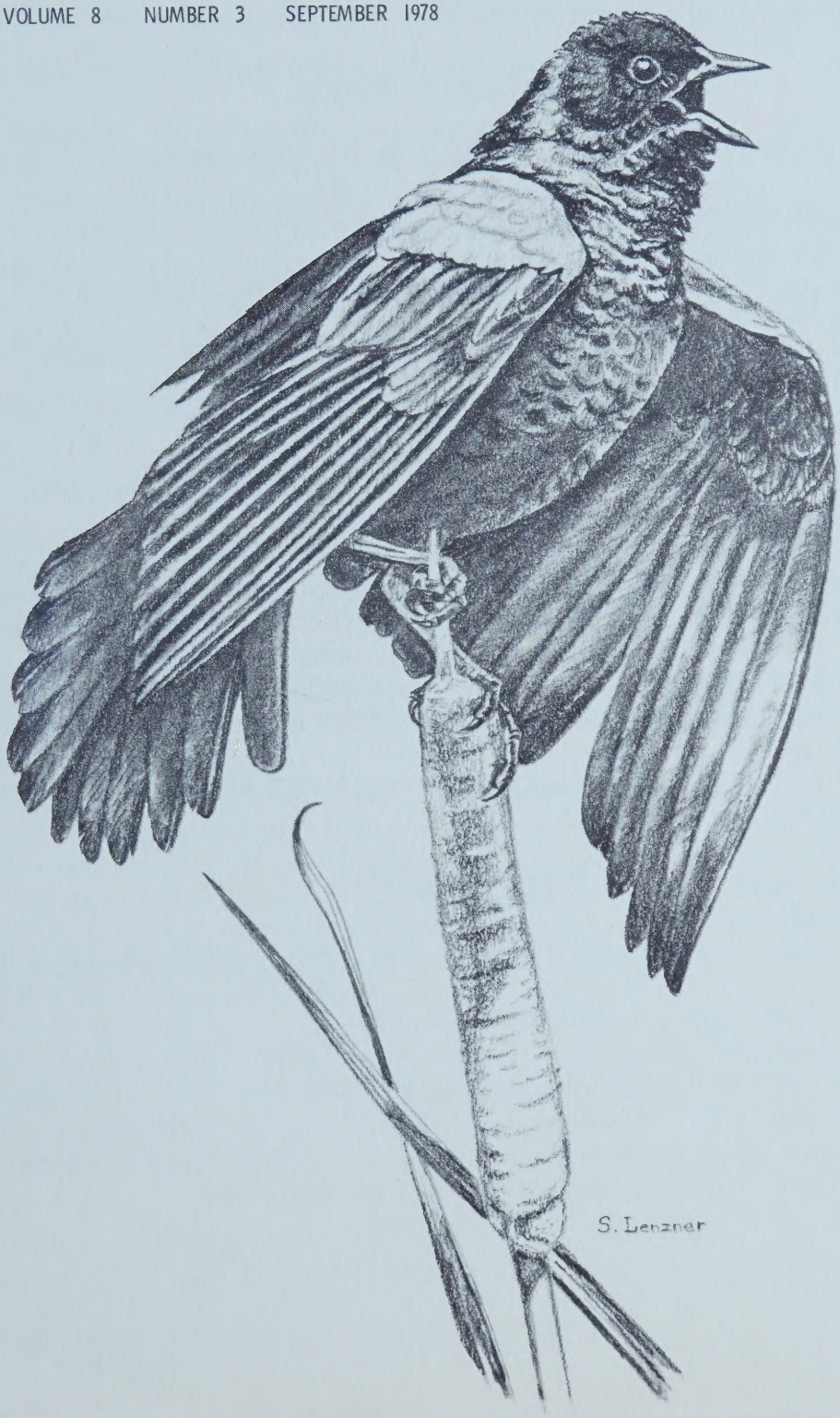

ALBERTA NATURALIST

Volume 8 Number 3 September, 1978

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COVER STORY

COVER: Red-winged Blackbird, by Sylvia Lenzner.

Sylvia Lenzner, of Edmonton, is perhaps best-known - and, ironically, least-known - for her paintings which are used for fish identification in the Alberta fishing regulations publication, and all fish and wildlife renderings on various Alberta government publications. Millions have seen her work, but few could tell you who the artist is. Her work has also been featured in the Canadian Nature Federation's Canada Nature Art Exhibition.

INSIDE ILLUSTRATIONS: Helene White, Lethbridge, Alberta.

CORRECTION

An unfortunate omission occurred in the article "Results of the 1977 May Species Count Day (Plants)", Vol. 8 No. 1, p. 48. Omitted was:

"14. Fort McMurray: Madeleine Dumais, Margaret Walker, Marion Horrocks and Deirdre Spencer recorded 110 species in flower".

Our apologies to Fort McMurray participants.

OVERHEARD (84)

Nature's Variability:

"I doubt that any bird is strictly anything. When we find a hawk gorging itself with choke cherries, a night owl hunting by sunlight, and sandpipers that never pipe or go near sand, one is prepared to give up, on behalf of the birds, all rules of life and conduct ....."

Ernest E. Thompson (E.T. Seton), 1891
"The Birds of Manitoba", p. 489.

AN UNUSUAL OCCURRENCE OF A RED-WINGED BLACKBIRD

by Jens Roland and Susan J. Hannon,
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Edmonton, Alta., T6G 2E9.

At 1600 hours on 5 March 1977, while skiing near Hilda Creek, Banff National Park, Alberta, the authors sighted a lone adult male red-winged blackbird (Agelaius phoeniceus) in the vicinity of the Hilda Creek Youth Hostel. The bird landed in a white spruce (Picea glauca), approximately 3 m from the observers. It was also seen by D.W. Krause (Dept. of Zoology, University of Alberta), and was positively identified by the black plumage and the red and yellow epaulets. It was still in the vicinity an hour later.

Hilda Creek Youth Hostel is located at the junction of Hilda Creek and Highway 93, 6 km south of the Columbia Icefields (52° 11' N, 117° 8' W). Elevation is approximately 2180 m and is slightly below the local treeline. At the time of the sighting winds were light and snowfall moderate to heavy; the air temperature was approximately -5° C.

W.E. Godfrey (1966. The birds of Canada. National Museum of Canada Bulletin 203) states that the winter range of the red-winged blackbird in Canada is southern British Columbia (Vancouver Island and the Okanagan Valley) and the extreme south of Ontario. Perhaps our sighting can be explained by this year's unusually mild winter conditions in western Canada.

The sighting of this bird is unusual not only with respect to the time of year but also due to its habitat and biogeographic location. Since the red-winged blackbird is a normal inhabitant of wetlands at much lower elevation, and a resident of Alberta from spring to fall, this sighting is worthy of note.

We thank David W. Krause, Peggy Tilley and David M. Ealey for critical comments on the manuscript.

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THIRD LORAN L. GOULDEN MEMORIAL AWARD RECIPIENT : CHARLES D. BIRD

by Martin K. McNicholl,
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The third annual Loran L. Goulden Memorial Award was presented to Dr. Charles D. Bird of the University of Calgary at the annual general meeting of the Edmonton Natural History Club on 10 January 1978. Charley was nominated by the Buffalo Lake Naturalists in a letter from BLN President, Virginia B. Maitland, dated 20 June 1977. The nomination read, "In view of his great contribution to FAN, through the Phenology Project, and for giving generously of his interest, time and knowledge to FAN members and associate clubs, we take great pleasure in recommending Prof. C.D. Bird as a worthy candidate". The nomination came as no surprise. I was well aware that the Buffalo Lake group and Chip Weseloh were both waiting for the end of Charley's term as external member of the award committee to expire so they could nominate him. Predictably, I received a longer letter from Dr. Weseloh seconding the nomination. Although an article doing full justice to Dr. Bird's contributions would be far too long for the Alberta Naturalist, I hope to present a reasonable summary here.

Charles Durham Bird was born on 7 July 1932 at Norman, Oklahoma, the son of Ralph D. Bird and Lillian Bird. Ralph Bird was a Manitoba naturalist, who taught at the University of Oklahoma from 1929 to 1933, after which he returned to Manitoba. I have several fond memories of Ralph Bird, as he was President of the Natural History Society of Manitoba in 1960-61, when I attended my first naturalist club meetings.

Ralph Bird was one of Manitoba's outstanding naturalists who received many honours. In 1966, while being awarded an Honourary Life Membership in the Natural History Society of Manitoba, he was dubbed, "Mr. Manitoba Naturalist". Although professionally primarily involved with agricultural problems, he was a generalist whose counsel people sought on all sorts of fauna and flora. From such a strong natural history background, one would expect Charley to either rebel or develop a keen interest in nature. Fortunately, he followed the latter alternative.

Although Charley is often regarded professionally as a botanist, naturalists know him as a well-rounded naturalist or ecologist. Indeed, his professional career began in entomology, with summer work with the Northern Insect Survey from 1950 to 1953. His next job was summer work with Forest Entomology from 1954 to 1955. In 1956, Charley completed his B.Sc. at the University of Manitoba. From 1956 to 1959 he worked during the summers for the Canadian Wildlife Service, while also working on advanced degrees. He completed his M.Sc. at Oklahoma State University in 1958, and his Ph.D. there in 1960. Both theses were ecological: Vegetational changes as related to waterfowl habitat in artificial lakes of southwestern Saskatchewan, Canada (M.Sc.); and Vegetational changes as related to waterfowl habitat in agricultural water bodies of Manitoba and Saskatchewan, Canada.

After a two-year Postdoctoral Fellowship, Charley came to the University of Calgary as an Assistant Professor of Botany. He was promoted to Associate Professor in 1967, and full Professor in 1974.

Charley Bird's contributions to botany have been extensive. When I first met in him Bob Nero's office at the Manitoba Museum of Man and Nature in Winnipeg several years ago, he was introduced as a bryologist. Indeed, his contributions to scientific understanding of non-vascular plants are numerous, and he has taught courses in both bryology and lichenology, as well as non-vascular plants in general. However, his botanical research has not been restricted to these often neglected groups, and his publication list includes several titles on vascular plants. His botanical contributions from Alberta are sufficient in themselves to warrant the Loran L. Goulden Memorial Award, but they are by no means restricted to Alberta, as they include work from Manitoba, Saskatchewan, British Columbia, the Yukon, and the Northwest Territories in Canada, as well as Oklahoma and New Mexico in the U.S.A. Charley is convinced that far too little work is being done on basic distribution and natural history, and much of his work encompasses these questions. Amateur naturalists can add to knowledge of both distribution and general natural history, and Charley has encouraged them to do so. His plant phenology study, a FAN project, is a prime example of how amateur contributions can be coordinated into an important scientific effort.

Although specializing in bryology, Charley has also made several scientific contributions in non-botanical fields, with publications on birds, reptiles, and especially butterflies and skippers. The latter in Alberta form the subject of a forthcoming book.

Dr. Bird's contributions to science are not restricted to publications and teaching. He has served as Curator of the Herbarium at the University of Calgary since 1962 (for non-vascular plants from 1963-1967; of the full herbarium from 1962-1963 and 1967 to the present), and on various department (biology), faculty (science), and university committees. In addition, he has served on advisory committees to the Alberta Department of Education in relation to biology curriculum in schools, and on scientific committees in the Canadian Botanical Association and the American Bryological Society. In editorial matters, he was a member of the editorial committee for the book, "Alberta, a natural history", he was on the editorial committee of the Alberta Conservationist, a short-lived magazine, has been Associate Editor for Botany of the Canadian Field-Naturalist since 1974, and chairman of the editorial committee of FAN from 1971 to 1974. He has also served as a paid and unpaid consultant to various government departments and environmental consulting firms, thus contributing his expertise to efforts on mitigating environmental impacts of various proposed developments.

Charley's contributions to Alberta natural history are not restricted to scientific efforts. He has strongly supported naturalist groups, serving the Calgary Field Naturalists' Society on various committees; FAN as an appointed Director during its entire existence, as Chairman of the Editorial Committee from 1971 to 1974, and as Chairman of the Research Committee from 1973 to the present; the Canadian Nature Federation as Provincial Director from 1973 to 1975; and the Edmonton Natural History Club as external member of the Loran L. Goulden Memorial Award for the first two awards. In addition, he represented FAN on the Public Advisory Committee on the Environment Conservation Authority from 1972 to 1973. He has led numerous natural history outings, and now plays host to naturalist groups on his recently-acquired ranch. He actively promotes study by others, as exemplified by his phenology study, and by his active participation in summarizing observer reports in the Calgary Field Naturalist.

The dedicated naturalist is invariably a conservationist in today's society. But unlike many conservation pressure groups, the naturalist relies less on emotionalism and alarmism, and more on baseline data and experience in nature. Charley has brought his expertise to bear on conservation issues. His work as an occasional consultant helps mitigate environmental damage of some projects. His teaching and lecturing to students and public groups help in conservation education. These are long-lasting but not easily-measured influences. A more tangible conservation effort can be seen in his dedicated work as Chairman of the Natural Areas Committee of the Calgary Field Naturalists' Society. This committee produced two important books on the natural areas of Calgary. These have gone far in helping to save these areas from rampant development. In particular, the committee was especially instrumental in a decision by Calgary City Council to preserve a major portion of Nose Hill, under intense pressure from developers. Charley was particularly active in this issue, writing letters to newspaper editors in addition to his work in coordinating and editing the studies of the Calgary Field Naturalists.

For his many achievements Charley clearly deserves the Loran L. Goulden Memorial Award. But perhaps his greatest achievement has been his immeasurable influence in encouraging and stimulating others in the study of nature. Virginia Lang wrote to me, "Most people, I think, would derive satisfaction (but feel overworked) if they accomplished one-half of what Charley does. Yet he never seems rushed or harried, and can always find time to help amateur naturalists. . . His office door is always open, and his suggestions, encouragement, enthusiasm, and advice, freely-given, have resulted in the constructive channelling of much energy of amateur naturalists in Alberta." I could add similar verbal comments ad nauseum from naturalists across southern Alberta had I kept note of all of them over the years I've been in Alberta. Two personal testimonials, however, in themselves indicate the enormous influence one person can have on the development of naturalist activity in a given area. In his seconding nomination of Charley, Chip Weseloh added a post-script, "On a personal note I cannot help but add this little sidelight - that it was Charlie's note on the Snowy Owl back in the C F N (Calgary Field Nat.) of '72 that stimulated & motivated me to begin to write-up & summarize the observational records in the files of the CFNS & elsewhere. To Charlie Bird

I owe that personal note of appreciation; I have no idea for how many other Alberta (Canadian) naturalists I may speak." When one considers the influence Chip had on the Calgary Field Naturalist and the Edmonton Naturalist, plus his own publications and the magnetic effect of his unflagging enthusiasm, Charley's contribution through influence on just one naturalist becomes incomprehensively great. Virginia Lang, without whom the Calgary Field Naturalist and Alberta Naturalist may never have developed as far as they did, adds, "I wonder if I would have ever become actively involved in natural history without Charley's counsel, support and encouragement combined with Chip's whirlwind enthusiasm? I'm personally indebted to both of them for not only enriching a hobby but, as it has turned out, providing a livelihood. I know my experience is not unique - they represented a "deadly team" of motivators for many a fledgling naturalist. Considering the effects of their influence on me, it's difficult to even begin to express the appreciation and admiration I feel." Need more be said?

Clearly, the third Loran L. Goulden Memorial Award has gone to a man who deserves it. Nose Hill, the Calgary Field Naturalist, the Alberta Naturalist - all will serve as permanent reminders of his contributions to Alberta natural history.

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1954. My travels in the Arctic. II. Game and Fish 9.
1956. A collection of Rhopalocera from the Whiteshell Forest Reserve, Manitoba. Lepidopterist's News 10: 107-108.
1957. The Parasitic Jaeger in Saskatchewan. Can. Field-Nat. 71: 37.
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1959. The Painted Turtle in Saskatchewan. Blue Jay 17: 125.
1959. Distributional records of Oklahoma mosses. Proc. Okla. Acad. Science 40: 1-2.
1960. Notes on the current list of New Mexico hepaticae. Bryologist 63: 114-115.
1960. Iklenberry, G.J., C.D. Bird and W.F. Mahler. The mosses of Payne County, Oklahoma. Bryologist 63: 112-113.

1961. The Candle-snuffer moss in the prairies. Blue Jay 19: 123.
1962. Mosses of the prairies of west-central Canada. Can. J. Botany 40: 35-47.
1962. Bryophytes of the Cypress Hills Provincial Parks, Alberta and Saskatchewan. Can. J. Botany 40: 573-587.
1962. Mosses from Jasper National Park, Alberta. Bryologist 65: 54-62.
1963. Ezra Henry Moss, 1892-1963. Blue Jay 21: 46-47 and New Trail 21(2): 22.
1964. Bird, C.D. and R.T. Olgivie. New Bryophytes for Alberta. Bryologist 67: 360-363.
1964. The apparent absence of Climacium americanum from west-central Canada. Bryologist 67: 461-462.
1965. De Vries, B. and C.D. Bird. Bryophyte subfossils of a late-glacial deposit from the Missouri Coteau, Saskatchewan. Can. J. Botany 43: 947-953.
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1966. A catalogue of the lichens reported from Alberta, Saskatchewan and Manitoba. Dept. Biology, Univ. Calgary.
1967. Bird, C.D. and I.A.R. Halladay. The Cypress Hills. pp. 117-133 IN Alberta - a natural history. Hurtig, Edmonton.
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1967. A catalogue of the lichens reported from the Yukon. Dept. Biol., Univ. Calgary.
1968. A preliminary flora of the Alberta Shagna and Musci. II. Dept. Biol., Univ. Calgary.
1968. De Vries, B. and C.D. Bird. Additions to the vascular flora of the Cypress Hills, Alberta. Blue Jay 26: 98-100.
1968. New or otherwise interesting mosses from Alberta. Bryologist 71: 358-361.
1969. Bryophytes of the Aspen parkland of west-central Canada. Can. J. Botany 47: 187-212.
1969. Kalgutkar, R.M. and C.D. Bird. Lichens found on Larix lyallii and Pinus albicaulis in southwestern Alberta, Canada. Can. J. Botany 47: 627-648.
1969. Bird, C.D. and W.S. Hong. Hepaticae of southwestern Alberta. Can. J. Botany 47: 1727-1746.
1969. Key to the bryophytes of Alberta prairies and parklands. Alta. Dept. Education.

1970. Notes on the bryophytes and lichens collected by John Macoun in the Cypress Hills. Blue Jay 28: 127-129.
1970. Notes on the bryophyte flora of the Cypress Hills. Blue Jay 28: 129-132.
1970. Arthur Reginald Prince, 1900-1969. Blue Jay 28: 133-134.
1970. Fall field trip to Brown-Lowery Natural Area. Calgary Field Nat. 2: 26.
1971. Spring flowering plants in the Calgary area. Calgary Field Nat. 2: 85.
1971. George Harrison Turner, M.D., 1877-1970. Blue Jay 29: 4-5.
1971. Brown-Lowery field trip. Calgary Field Nat. 3:17.
1971. Botany of the Glenmore Reservoir outing. Calgary Field Nat. 3: 18.
1971. Botany of the Inglewood area. Calgary Field Nat. 3: 20-31.
1971. Bird, C.D. and D.H. Vitt. Field trip 2 - Bryological and Lichenological. Can. Bot. Assoc./A.I.B.S. meeting, Edmonton.
1971. Inglewood evening walk. Calgary Field Nat. 3: 33.
1971. The status of the Purple Martin in the Calgary area. Calgary Field Nat. 3: 48-49.
1972. The Snowy Owl in the Calgary area, 1964-1972. Calgary Field Nat. 3: 105.
1972. Field trip to Inglewood and Pearce Estate. Calgary Field Nat. 3: 123.
1972. Blooming times of Alberta flowering plants. Alberta Nat. 2: 23.
1972. Bird, C.D. and A.H. Marsh. Phytogeography and ecology of the lichen family Cladoniaceae in southwestern Alberta. Can. J. Botany 51: 261-288.
1972. Botany of the FAN field trip to the base of Mt. Yamnuska. Alberta Nat. 2: 34.
1972. Ralph Durham Bird, 1901-1972. Can. Field-Nat. 86: 393-399.
1972. A catalogue of the lichens reported from Alberta, Saskatchewan and Manitoba (Revised). Dept. Biol., Univ. Calgary.
1972. Book review: Common coulee plants of Southern Alberta. Calgary Field Nat. 4: 77.
1973. Stuart Criddle, 1877-1971. Can. Field-Nat. 87: 71-76.
1973. (Ed.) Five "natural areas" in the city of Calgary. Calgary Field Naturalists' Society. 302 pp.
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1973. Bird, C.D. and J.O. Hrapko. Plant ecology of Alberta (a bibliography). Prov. Mus. & Archives, Edmonton.
1973. Calgary plants known to have been in "flower" in April. Calgary Field Nat. 4: 195-196.
1973. Early spring butterflies in the city of Calgary. Calgary Field Nat. 4: 199-200.
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1973. Spring 1973 migration of the Painted Lady Butterfly into Alberta. Calgary Field Nat. 5: 5-7.
1973. Summer butterflies in the city of Calgary. Calgary Field Nat. 5: 8-9.
1973. New or hypothetical butterflies for Calgary. Calgary Field Nat. 5: 58-61.
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1973. A new catalogue of the bryophytes reported from Alberta, Saskatchewan and Manitoba. Dept. Biol., Univ. Calgary. 63 pp.
1973. New butterflies for Calgary. Calgary Field Nat. 5: 107-108.
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1974. Studies on the lichen genus Evernia in North America. Can. J. Botany 52: 2427-2434.
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1974. Botanical studies near the Mackenzie River, Northwest Territories. Can. Dept. Mines & Resources, Geol. Surv. Can., Open File Rep. 225. 235 pp.

1974. Botanical studies in the Yukon and Northwest Territories carried out in 1972 in connection with the Geological Survey of Canada field parties run by Dr. O. Hughes and Dr. N. Rutter. Can. Dept. Energy, Mines & Resources, Geol. Surv. Can., Open File Rep. 227. 402 pp.

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1975. The lichens, bryophyte and vascular plant flora and vegetation of the Landing Lake Area, Prince Patrick Island. Can. J. Botany 53: 719-744.

1975. Book Review: A.E. Porsild, Rocky Mountain Wild Flowers. Can. Field-Nat. 89: 338-339.

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1975. A calendar of the butterflies and skippers of the alpine area of Plateau Mountain. Alberta Nat. 5: 26-28.

1975. Mothers, skippers and butterflies in the Yamnuska natural area, pp. 22-27 IN Yamnuska, introductory studies of a natural area with proposals for its protection and use. Banff, Bow Valley Naturalists.

1975. A revised calendar of the butterflies and skippers of Calgary. Calgary Field Nat. 6: 317-318.

1975. Plants in flower at the FAN spring meeting at Writing-On-Stone Provincial Park. Alberta Nat. 5: 59.

1975. Bird, C.D. and W.S. Hong. The hepatic flora of Alberta; a phytogeographical analysis. Can. J. Botany 53: 1745-1768.

1975. The non-flowering plant world. pp. 14-17 IN Sherrington, P. (Ed.). A popular guide to the natural areas of Calgary. Calgary Field Naturalists' Society.

1975. Checklist of the butterflies of the natural areas of Calgary. pp. 175-177 IN Sherrington, P., ibid.

1975. Rhopalocera in the N.B. Sanson collection. J. Lepid. Soc. 30: 201-206.

1975. A calendar of the skippers and butterflies of Banff National Park. Alberta Nat. 5: 71-75.

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1976. Calgary flowering dates - 1976. Calgary Field Nat. 8: 97-102.

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1977. Case, J.W. and C.D. Bird. Butterflies and skippers of west-central Alberta. Blue Jay 35: 208-219.

1977. Smith, W.W. and C.D. Bird. Some butterflies and skippers from the Milk River - Lost River area of southeastern Alberta. Blue Jay 35: 15-18. Errata Blue Jay 35: 77.
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1977. FAN phenology project 1976. Alberta Nat. 7: 11-29.
1978. 1977 Alberta flowering dates. Alberta Nat. 8: 9-26.

In Press: 4 chapters in A Naturalist's Guide to Alberta; and three additional scientific papers.

THE HOBOMOK SKIPPER - ANOTHER "EASTERN" SPECIES IN ALBERTA

by Charles D. Bird,
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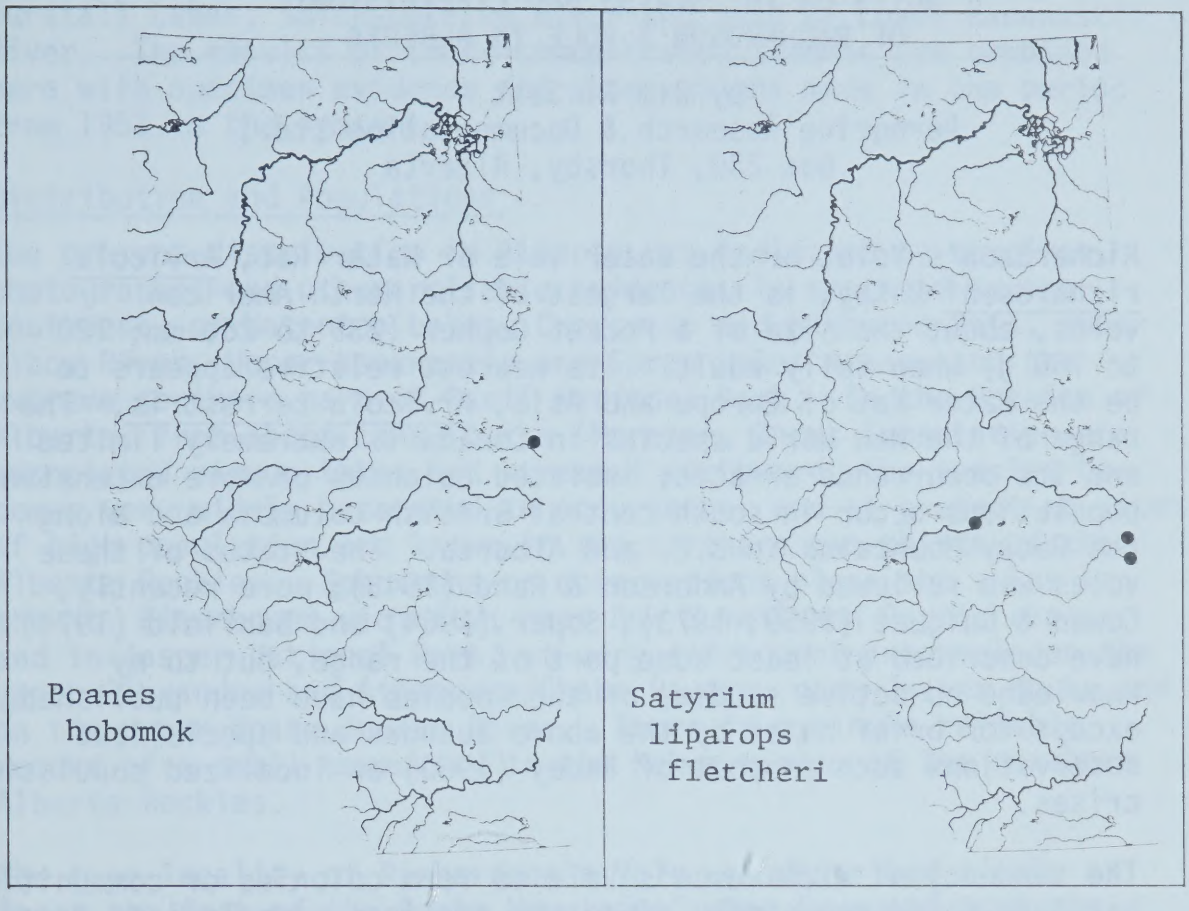
and Wayne W. Smith
8220 Elbow Drive SW, Calgary, Alberta

On June 5, 1976, the second author collected a medium-sized orange-brown skipper in mixed woods at Lund's Point, Cold Lake. Later examination by the first author revealed that it was a male Poanes hobomok (Harris) and a subsequent examination of the literature and the collection data showed that it was the first known observation of this species in Alberta.

The Hobomok Skipper has a wingspread of 26-34 mm. It is orange above with a wide, dark brown border on both fore and hind wings. The wings below are similar but tend to have a purplish brown border. Similar to the common Polites coras, Peck's Skipper, in having a large yellow patch in the middle of the hind wings below but this patch is larger and fully open while in P. coras it is either "pinched-in" or broken by brown scales extending inward from the margins. Also contrary to P. coras, the males lack a black stigmatic line but do have a short black line near the wing tips. The females have less orange above and have a more extensive dark area near the tip of the fore wings above. As in most skippers, the larvae of this species feed on grasses.

The Hobomok Skipper is now known from Nova Scotia west to east-central Alberta, south to Georgia, Alabama and Kansas. Ronald Hooper, in his "Butterflies of Saskatchewan", states that it is "Common in eastern Saskatchewan, west to Nipawin Provincial Park, Nipawin, McKague, Punnichy, Balcarres, Indian Head and Roch Percee."

The present species joins the ranks of a growing number of plants and animals which reach their western limit in east-central Alberta. The well-known Hazelnut, Corylus cornuta, extends west to near the vicinity of Edmonton. The late Ezra Moss and George Pegg mention a number of other "eastern" vascular plants with boreal affinities in their Swan Hills



paper of 1963 (Can. J. Botany 41: 1079-1105). Birds which belong to this group are the Virginia and Yellow Rails; Short-billed Marsh Wren; Great-crested Flycatcher, Philadelphia Vireo; Blackburnian, Chestnut-sided and Canada Warblers; and the Swamp Sparrow. The Crayfish, Orconectes virilis, occurs in waters of the North Saskatchewan River east of Edmonton (Can. Field-Nat. 86: 123-125). Two other butterflies, Satyrium liparops fletcheri (Fletcher's Striped Hairstreak) and Lethe eurydice eurydice (The Eyed Brown, Psyche 1970: 70-103) also belong to this "eastern" element. Further study is certain to reveal additional examples.

NOTES ON THE STATUS AND LIFE-HISTORY OF RICHARDSON'S VOLE IN ALBERTA

by Jim R. Salt
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Box 239, Thorsby, Alberta

Richardson's Vole, or the Water Vole or Water Rat, Arvicola richardsoni DeKay, is the largest of the North American voles, about the size of a Pocket Gopher (235 to 260 mm; 120 to 160 g) when fully adult. Its nearest relative appears to be the Water Rat of Europe and Asia, Arvicola terrestris. The range of the New World species in Canada is extremely limited and its occurrence erratic; isolated colonies or more extensive populations occur in south-central British Columbia and along the Rocky Mountains in B.C. and Alberta. The status of these voles was reviewed by Anderson & Rand (1943); more recently, Cowan & Guiguet (1959; 1973), Soper (1964) and Banfield (1974) have described at least some part of the range, but to my knowledge no active studies of the species have been published, except for brief notes by the above authors and specialized observations such as that of Racey (1960) on localized population crises.

The tendency of Richardson's Vole to form colonies or communities has been noted repeatedly since the earliest mammalogists found the species in Alberta. N. Hollister (1912) mentions its heavily-used and deep runways, with extensive earthworks, in Moose Pass region. Possibly because the surface evidence of families or communities is so easily recognizable, most records derive from such localities of heavy concentration or long occupation. The present note on distribution in Alberta, together with observations on elements of the life-history, are intended to record the results of periodic active studies and documented occurrences in the Alberta Rockies, or Waterton region north to Kakwa.

In the course of biological investigations undertaken for the Resource Assessment and Management Branch, Alberta Recreation, Parks & Wildlife (spring 1976 through winter 1976-1977) the author, assisted by R. Clarke and A. Furnell, undertook some basic studies of the Richardson's Vole in the area bounded by the Highwood Pass and Mt. Rae, the Elk Passes, Upper Kananaskis River and Kananaskis Passes, Spray and

Burstall Lakes, Smith-Dorrien River and head of Lower Kananaskis River. The results of these concentrated studies are combined here with specimen evidence and observations made in the period from 1953 to the present.

Distribution and Populations

The present distribution in Alberta, as indicated by specimen, photographic and other reliable evidence, is centered in the southwest, or Waterton Lakes, Crowsnest and Highwood Pass, upper Elbow River, Upper Kananaskis and Spray Lakes areas, and the extreme southern part of Banff National Park. In the Rockies of Alberta, from about Lake Louise (Moraine, Boom, Consolation and associated cirque lakes and streams) northward, the species becomes very widely separated in occurrence, and at present no sites of high population are known in the northern two-thirds of the Alberta Rockies. Specimens or observations place the voles in the Mt. Eisenhower vicinity; near Bow Summit and Peyto Lake; and in Jasper National Park, at very infrequent intervals on the upper Alexandra and Athabasca/Chaba Rivers; near Jasper House and on the upper Snake Indian River. There is a single reliable record of a small community in the Kakwa region of the northern Alberta Rockies.

The type locality of Richardson's Vole was described simply as "near the foot of the Rocky Mountains" when Drummond took the type specimen prior to the middle of the nineteenth century. The specific type locality was attributed by Preble (1908) and by Bailey (1900) to the Jasper House vicinity. There is no more recent record from that locality, and if the type was indeed collected at Jasper House, then it would constitute the record of lowest elevation for the province - about 1015 m (3300 ft.) A.S.L. N. Hollister (1912) collected five specimens "on the head of the Smoky River, Alberta, near Moose Pass summit" (p. 24), at what he described as "a small colony", well-marked by runways, plant cuttings and burrows. The elevation of this colony was given as "close to 7,000 ft. altitude" (ca. 2100 m). Soper defines the altitudinal range in Alberta as "between 6000 and 7800 ft." (1845 - 2400 m); Banfield (1974) cites a lower limit of about 1600 m (5200 ft.) for the Canadian population generally. My own investigations, including specimen evidence, extend both minimum and maximum limits somewhat, to 1560 m (5070 ft.) and 2460 m (8000 ft.). The elevation of maximum population-density in southwestern Alberta averages about 2170 m (7050 ft.) at various sites in the Kananaskis.

Range or Territory, Configuration and Extent of Use

Without exhaustive studies, an accurate estimate of population densities is not possible. However, trapping and marking of Richardson's Voles at sites in southwestern Alberta revealed that in localities where clear, well-used runways and burrow-systems were present, a single adult pair of the voles might create or maintain the runways over as much as 25 to 35 m of stream-edge. The densities of populations studies were estimated from live-trapping and snap-trapping; ear-tagging and hair clipping were both employed to some extent. Visual observation of the voles was possible in the majority of cases. Because the species was so closely dependent upon water, both populations and territory were easily described in terms of a linear unit; this implies a long and narrow rectangular territory, from 1 to 3 or 4 m wide by as much as 50 m in length, along a stream-edge, marsh or lake-shore.

In the Kananaskis and Burstall Lakes regions, in some higher cirques of the Highwood Pass, Elk Range and more southerly sites, numbers of the voles exceeded 4 pairs of adults per 30 m, while in low marsh and birch/shrubby cinquefoil fens in Lower Kananaskis and Smith-Dorrien, Elbow River/Sheep Creek, Pocaterra Creek and Opal Range locations (ca. 1560 to 1700 m) the numbers of Richardson's Voles recorded were as low as 1 adult pair per 100 m of shoreline.

Although the runways of these voles, in low-density sites, might extend for as much as 50 to 75 m along banks or shores, the used or occupied portions of runways were from 10 to 35 m in length. Used and unused or abandoned runways were distinguishable visually by the presence of new or recent plant-cuttings and fecal deposits in them, and by the absence of any vascular or bryophitic growth in active runways, where earth was always scoured clean by the repeated passage of feet.

Runways and dens or burrows were generally located in low dense growths of willow (Salix barrattiana, S. arctica X glauca, etc.), scrub or shrubby fir and spruce, birth, shrubby cinquefoil, and marsh-edge rush, sedge and cattail. Usually one, or at most two, major runways paralleled the shore or bank, branching infrequently and sending out extremely short stub arteries which disappeared abruptly at open feeding sites, and steep short stub runways leading directly into the water. Plant cuttings might be found anywhere along active runways; fecal middens were small, and generally located either near some favorite feeding site or on

one of the highest points of the main arteries of travel. Feces of the voles, capsular or obovate and 7 to 13 mm in length, cannot be mistaken for those of any other mammal occurring in the region, and while the fecal remains were dependable evidence of occupation, they were never very useful in estimating the size of the population, for even in high-density sites the toilet middens were infrequent.

When a family of voles required more territory, the expansion occurred always along the major axis of the range, or up and downstream. No voles were found wandering more than 4 m from this axis (except at the Mt. Putnik sites, described below). At marshes where floating vegetation or extensive marshes and cattail cover permitted, the voles wandered freely and fed in a territory more nearly square, or 20 m by 30 m per adult pair. But even in such situations they did not stray beyond 2 to 4 m from the wet marsh edge. Runways in such sites were maintained along a very narrow bank or shore region in cattail, rush, willow and sedge, and feeding excursions took the voles out onto mattes of cattail in as much as 1 m of standing water.

At a few sites of very high population, runways were made in open short grass and sedge stream-sides. In a cirque west of Highwood Pass, well-maintained runways meandered on flat islands of sedge and sparse willow (15 to 30 cm high) between stream-channels; but when observed during the day, the Richardson's Voles were in the dense low willow-covered portion of these territories. At only one site - that of a high cirque on the north face of Mt. Putnik above Upper Kananaskis River - did populations reach such density that the environmental restrictions noted above were ignored. In the Putnik cirque, dens of the voles were found at the edge of the cirque plain and dotting the stream-edges, and extending some 150 to 200 m above the cirque up open sedge and herb slopes. Here, occupation followed small dry or seasonal stream-channels a few cm wide, and in many instances the population had spilled out over open or open-larch-fir slopes for 8 to 10 m on either side of the dry stream-beds. The herb and moss matte overlay old stable boulder slopes, and there was little evidence of earthworks. Richardson's Voles were "put up" here by stamping of the feet at or near dens. No accurate population estimate could be made.

Winter territory or range-use varied greatly in some sites from that of summer use. In the Elk Pass (Fox Creek) sites the voles

occupied narrow flats of fir, birch, willow and shrubby cinquefoil during the snow-free period; but beneath the snow they extended their activities up to 10 m from the stream-edges, onto open clay, fine shale and other sparsely vegetated areas where they engaged in mining or rooting, leaving long curled tubes of soil on the ground surface at melt-off. These were in all ways similar to the earth-tubes deposited by Pocket Gophers in prairie and aspen groveland regions. In melting snowbanks, tunnels of the Richardson's Vole were noted at ground-surface, and at depths of a few cm below the snow-surface, or 40 cm above ground. Little or no activity was noted here in winter up the steep fir and spruce/pine slopes flanking the valley-bottoms, however. At the marshes in lower valley locations there appeared to be little alteration of territory from summer to winter.

Foods and Feeding Patterns

It will be clear from the description of ranges above that dominant food plants varied greatly from colony to colony of the Richardson's Voles. Cowan & Guiguet (Op. cit.) and Banfield (Op. cit.) list lupines, valerian, louse-wort, arnica, willow and sneezeweed as principal foods; in an early account from Moose Pass (Jasper Park region) Hollister (Op. cit.) notes principally the stems and tips of blue lupine in association with the runways of the species. In the Kananaskis, the food and feeding habits were seasonally as well as geographically diverse. At the Mt. Putnik cirque where populations were high, sedges, knotweed (Polygonum), fleabanes and lousewort, grasses and willow buds were taken. In the winter feeding sites of Elk Pass and other lower-elevation colonies, roots of lousewort (Pedicularis), willows (chiefly Salix barrattiana), glacier lily (Erythronium grandiflorum) and even some arnica and everlasting (Antennaria) were clipped. Smaller willow stems were cut into short, 3 to 5 cm sections, the bark peeled, and the bare stems left in large piles beneath the snow. Rarely, major willow stems were stripped of bark to a height of 35 or 40 cm. While still under protection of spring snowbanks, the voles took large quantities of dandelion from an old abandoned roadway and from the open lowest slopes of the valley walls. At many higher elevation sites, umbrellaplant (Eriogonum) was cut and the leaves partially eaten. In the lower marshes cattail and rushes were clipped in the manner of Muskrats, and the stems littered the shore at favorite feeding sites.

Relatively little seed and little insect matter appeared in the

Richardson's Vole diet. At some low marshes, seed of dock (Rumex) and grasses were found in very small quantities in cheeks and stomachs.

Activity and Movements

Richardson's Voles were observed out and active at all hours from early May through about mid-August, after which they appeared to confine their feeding habits to nocturnal periods. From May until early August, the majority of live-captures, specimens and observations derived from the periods of 5:00 to 7:45 a.m. and 5:00 to 10:00 p.m., indicating peaks of activity at those times. The voles were more frequently encountered during mid-day on overcast days or in rain. But in autumn, the few observations and captures occurred between 7:30 and 9:30 p.m. (at and after sunset) and again from 11:30 p.m. to 1:00 a.m. Diurnal observation in later September, October and November were the result of deliberate "putting-up" of the voles by the observers, who stamped vigorously on the ground at dens.

In late October and November, without snow-cover on the population sites, night temperatures fluctuated from -8° to -23°C and this may have contributed to the voles' inactivity.

Due to the abundance of diurnal sight-records in spring and summer, the author was able to make a great many observations, at considerable length, on the feeding habits and movements of the species. They were usually feeding or foraging when sighted, and if disturbed or pursued, they always used well-worn runways or the water as their escape route. A most remarkable aspect of this species is its swimming ability. The feet - particularly the hind feet - are equipped with short fringes of stiff hairs which spread between the phalanges and act as a slight webbing in water. The voles show great speed and strength, swimming on the surface and underwater. The usual mode is surface swimming, with only the head and mid-back above water. But when chased, the animals dove and swam as much as 8 to 10 m underwater. They swam swift rapids, and even immatures about one-half grown could maintain a strong stroke, crossing swift streams from 3 to 5 m wide without losing much ground to the current. In swimming, Richardson's Voles use both hind and forefeet, the hind feet for propulsion and the forefeet to propel as well as to guide and protect the vole in rocky sections or in dense aquatic vegetation. The tail appears to serve only secondarily as a rudder; changes in direction during

swimming were effected merely by twisting the body sideways, aided by the forefeet.

Runways and Dens, Nests

The runways have been described above; dens are difficult to locate, due either to the rocky substrate or to the instability of muds in which they are so often found. Runways are sunk so deeply into the ground, in many situations, that they are simply tunnels with the tops removed. They become completely subterranean for short or longer distances in the softer soils. Some sections of tunnel on boulder substrate, excavated in the 1950's and again in 1977, led to endless natural labyrinths, and a single nest - apparently only temporary - was located 55 cm from the den mouth in one of these, and only 13 cm beneath the surface, in a natural chamber measuring 11 x 19 cm. The nest was shapeless and loose, of grass, sedge and ground lichens (Cetraria, Peltigera, etc.), and filled the available chamber. Dalquest (1948) described the globular nests of grasses constructed on the surface by these voles, resembling large winter nests of Meadow Voles. But no such nests were noted in Alberta by the author. A single surface nest of Richardson's Vole was noted in 1964 in a high cirque of the Opal Range, measuring approximately 17 cm in diameter, with tightly woven grass and sedge dome and an inner chamber 9 cm in diameter containing grouse (Franklin's Grouse) feathers, vole fur and small amounts of lichen (Cetraria).

While it is generally true that tunnels, runways and dens are situated in either damp earths, muds or moss and herb mattes, the winter feeding tunnels and diggings of the voles were noted in coarse soils, such as fine friable shales (Fox Creek) and coarser gravels (Pocaterra Creek, Storm Creek vic.).

Reproduction

In 1976 a peak was noted in reproductive activity, from late May through June. At this time, adult females captured or examined were lactating or gravid (85 per cent of cases) and males had testes scrotal (100 per cent of captures). Since few specimens were collected, no average of embryos is available for that year. But collecting in the Highwood area from 1951 to the present indicates that June is the peak month in reproduction, and that average litters (in embryo) at this location are 4 (3 to 5) young.

In mid-August and until early November (1976), Richardson's Vole immatures, from one-half to two-thirds grown, were found in the same ranges occupied by adult pairs. None of these immatures showed evidence of reproduction; two immature males (of 36 examined) had testes enlarged somewhat; all immature females were vagina imperforata. But at the Mt. Putnik cirque, immature voles one-half size were found in many cases to be independent of the adults - so much so that they had developed new small runways and dens of only 3 to 4.5 cm in diameter. No adults were found or captured in these runways and tunnels. Of 12 immature males examined from this location, 7 exhibited enlargement of testes; 1 had testes greatly enlarged and scrotal. Of 5 immature females, none was gravid but 4 had ovaries enlarged. Crowe (1943) notes a gravid immature female about two-thirds grown (188 mm full-length). Rand (1948) states that Richardson's Voles may bear more than one litter per year; but the investigations in the Kananaskis region failed to reveal second pregnancies or late litters.

From the author's periodic studies in Alberta it would appear that Richardson's Vole young-of-the-year do not achieve average mature or adult size until the following spring-summer (ca. 220 - 245 mm full-length), and that growth continues at least until 1½ years of age.

Predation

It was found from extensive fecal and pellet analysis in the Kananaskis and in more northerly regions that this vole was not a significant prey-species for any of the common predators. In lower elevation sites, and all sites of moderate to low population-density, only one occurrence (Richardson's Vole in Coyote pellet) was noted. At the Putnik site, however, Coyote, Lynx and Short-tailed Weasel were found hunting or digging in the colonies. Migrant Buteos (Red-tailed Hawks) soared over this site for periods of several hours each day through much of September. High on Mt. Putnik, remains (intestine and stomach) of three voles were left by a mustelid or smaller predator which by its feeding habits ignores or leaves the less edible portions. Fragments of two other Richardson's Voles also suggested a predator such as the small weasels or Accipiters. At the Putnik site, the digging of Black Bear or Grizzly was also noted in conjunction with vole dens.

In Upper Burstall Lake, an adult vole was found drowned; two others

were found near a camp site, uneaten, and probably taken by a domestic dog or cat for sport.

Interspecifics, Richardson's Voles and Other Small Mammals

At those localities where the Richardson's Vole reached high population density, no other vole was noted during trap and live-trap surveys of the sites. Two species of shrews, the Dusky or Wandering Shrew (Sorex monticolus) and the Water Shrew (Sorex palustris navigator) occurred in the same runways or along the same stream and pond edges. At medium and lower population sites, these two shrews, and the Long-tailed Vole (Microtus longicaudus), the Heather or Phenacomys Vole (Phenacomys intermedius) and the Bog Lemming (Synaptomys borealis) were all taken in the same runways or in the same territories with Richardson's Voles. At the lowest elevations (mouth of Pocaterra Creek; Lower Kananaskis River, low elevation marshes and ponds) the Meadow Vole (Microtus pennsylvanicus) and the Jumping Mouse (Zapus princeps) were also recorded infrequently.

Conclusion

The Richardson's Vole is an unusual or rare species in Alberta Rocky Mountain locations generally, and is principally a species of the southern Rockies. The discovery of major colonies or populations in the Kananaskis and adjacent regions suggests, however, that it is neither as highly selective of habitat, nor as closely confined to specific vegetative and soil types as was previously supposed. The elevational range occupied by Richardson's Voles in Alberta must be revised slightly from Soper's 1964 estimates, for in the Kananaskis Lakes and Rivers region alone the species is found resident at elevations from ca. 1560 m to almost 2500 m (5070 to 8000 ft.) A.S.L.

Many aspects of the dynamics of this species are seen to differ both with elevation and with population density. Groups or families of immature Richardson's Voles, about one-half grown, are found independent of the adults in smaller runways and tunnel systems at localities where populations are very high.

The existence of populations varying in density and altitude in the relatively small geographic area of the Kananaskis Lakes/Upper Kananaskis River region, offers a unique opportunity for study of this unusual and poorly-known microtine.

Acknowledgements

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NATURALISTS' BOOKSHELF (32)

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Carex in Saskatchewan, by John H. Hudson. 1977. Bison Publishing House, Saskatoon. ii + 193 pp. $10.00 plus .50 handling.

The prospect of having to identify a fistful of Carices collected in a fit of incautious enthusiasm strikes terror to the naturalist and daunts the professional sometime-Carex worker. This book mitigates the trauma only slightly.

John Hudson has put a great deal of careful work into the preparation of this manual. It is significant that he speaks of the Carices as "old friends". The naturalist and many professionals are likely to have alternative appellations.

This manual is a strange combination of simplicity and clarity for the naturalist and sophistication for the professional, with sudden switches from one to the other. The author has made a determined and commendable effort to present the genus Carex in a form comprehensible to the naturalist, but lapses such as ". . . a polyploid - apomictic complex of the Antennaria sort. . ." are big lumps for the naturalist to swallow. The author states that the purpose of the book is identification, not taxonomy, but the species discussions are taxonomic. In the species descriptions he presents the views of discrepant authors for the readers' judgement, but such judgement is something that the naturalist or the occasional professional is not in a position to make. The user of this manual is thus left, in the last step of species determination, with grave doubts as to what he has in hand.

The General Section, in which is described the typical Carex plant, is reasonably clear and is a distinct asset to the manual. The author has included three important items of advice to the novice for the collection of Carex material. However, with the novice in mind, there is no glossary to explain terms subsequently used in the key or for reference or quick review of points brought out in the General Section. The instructions for the use of the key are directed to the novice.

The author has made a commendable effort to provide genuine alternatives in the couplets of the key. There are few instances of "more or less". At each successive couplet of the key the alternatives become less distinct and more tenuous, requiring greater judgement that increases the probability of error. Sometimes the alternative is not worded in the same sequence as the statement, thereby diminishing its effectiveness. The author has made good use of the simile in describing such things as ". . . dense 'shaving-brush' tufts. . ." or ". . . double ladder-like skeleton resembling a 'run' in a stocking. . .". He has tried valiantly to provide several items in each alternative but was sometimes able to do so only marginally and this breaks down especially in long Group separations.

The author recognizes that it is possible to go wrong in following his key. In any plant group there is a fixed number of diagnostic morphological features which can be arranged into a key and only the repeated use of a key will reveal its strengths and weaknesses. The user should be no more dismayed by making a wrong decision in the use of this key than he would by the use of any other key. No matter how conscientiously a taxonomist tries to make a useful key, a Carex is a Carex is a Carex. When all the alternatives of the key have been evaluated and all judgements made, a herbarium is the essential and final arbiter and even that can be in error.

A key does not bring out similarities of species widely separated in it. The author has drawn attention to many such items in his species descriptions. Greater stress placed on such comparisons, based on the author's considerable experience, would enhance the value of the species descriptions.

The alphabetical arrangement of species descriptions, distribution maps and plates is commendable.

The user of the manual is advised to heed the author's comments concerning the distribution maps. While the collection sites indicate the presence of the species, the absence of a collection may not indicate the absence of the species.

The plates are immediately recognizeable by the worker who is familiar with the appearance of known species on the herbarium sheet. They are, however, largely a confusion to the less experienced individual who is attempting to verify his keyed determination. The plate of C. sprengelii, for instance, does little for this reviewer, nor do the plates of C. rostrata and C. retrorsa present a definitive separation. From the plates it is difficult to distinguish the single spike of C. gynocrates from the two or more spikes of C. chordorrhiza. The plates do not take into consideration the atypical collection nor the culm or two which has been collected from a tuft.

In spite of some shortcomings, John Hudson's Carex in Saskatchewan is the most suitable text of that difficult group for the province. It is the only manual of this, or a neighboring, area that has pictures or drawings and range maps. Although it shares with A.J. Breitung's Annotated Catalogue of the Vascular Flora of Saskatchewan a coverage of the entire province, it alone has a key, an absolute necessity for the identification of Carex. The Wild Plants of the Canadian Prairies by A.C. Budd and K.F. Best is applicable to only the southern one-third of Saskatchewan and to about half of the Carex species of the province. Several other manuals, east and west, are likewise applicable to only some of the species of Carex and only part of an area. K.K. Mackenzie's North American Cariceae has superb drawings but it is of the Carices of the continent. In Alberta, this manual is one of several references that will be used by the serious worker.

MANAGEMENT OF COYOTES IN ALBERTA

by Gillian Seaton,
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> "But what of the rights of the coyote? When we come to understand the nature of the beast. . . and value the role of the coyote in the ecosystem, of its place in the balance of nature, then perhaps the coyote will also have rights." Dr. Michael Fox, Director of the Institute for the Study of Animal Problems, Washington, D.C.

For nearly 150 years the white man on the western prairies has been waging war on predators. Now, as a result, the larger carnivores have become scarce and are seldom seen in Alberta. The little kit fox has been virtually eliminated. Only the coyote, through its adaptability, resilience and tenacity, has managed to hold its own. It has, indeed, succeeded in extending its range in this province following the retreat of the larger predators and increased settlement. The red fox is established in the southeast portion of Alberta but throughout the whole of the province the coyote is now our most important predator and should be managed as such.

What is the law regarding the killing of coyotes? In the "green" areas, i.e. forested areas of the west and north, they are managed by the Department of Recreation, Parks and Wildlife. They are regarded by that department as being of intrinsic value to the province and there are restrictions on hunting. However, in the settled or agricultural areas coyotes are controlled by the Department of Agriculture. Here there is no law protecting them. They are considered to be an "agricultural nuisance" and, as such, can be killed at any time and in any numbers.

To find out how this came about we must go back 37 years to 1941. That year the control of predatory animals such as coyotes, wolves and cougars, was transferred from the Department of Agriculture to the then Department of Lands and Forests. Ten years later, in 1951, at the insistence of the sheep farmers, control of the coyote was returned to the Department of Agriculture in the settled parts of the province. The control of

other large predators remained with the Department of Lands and Forests.

For the next 25 years there was all-out war against the coyote by the Department of Agriculture, who classed it as an 'agricultural pest'. In the years between 1951 and 1976, the predator specialists of the Department, according to their annual reports, killed an estimated half million coyotes with the use of traps, cyanide coyote getters, strychnine and sodium monoflouroacetate (compound 1080). Although this estimated total is likely well below the sustainable harvest it does not include the annual fur harvest or the unrecorded kills by farmers and sport hunters which could have amounted to another three quarters of a million coyotes.

Let us look back to 1951 and see how things stood when the coyote was turned over to the Department of Agriculture. Their pelts were then worth only $4.44, the "frontier" feeling was still very prevalent in the west, and coyote hunts were regarded as social outings. Urban residents had little interest in the environment.

Since then there have been some important changes. A coyote pelt is now worth $59.47 - the total value of the pelts sold last year in Alberta was $1,746,753. Urban residents now regard the coyote as an important part of our wildlife and want to know that it is being managed accordingly. The ecological value of the coyote has also been recognized by both farmers and scientists. Dr. Frank Craighead, the well-known naturalist, described coyotes as performing "a useful function as scavengers and they do more good as rodent destroyers than harm as livestock killers".

In 1974 the classification of the coyote was changed from "agricultural pest" to "agricultural nuisance" making the killing optional. However, the permissive attitude of the Department of Agriculture to the hunting of coyotes ensured that the killing continued unabated.

Consider now the different philosophies of the two departments. The overall purpose of the Wildlife Branch of the Department of Recreation, Parks and Wildlife, is to:

"Maintain and improve wildlife populations and wildlife habitat to perpetuate all forms of wildlife for the aesthetic, recreational and economic well-being of the people of Alberta".

The stated purpose of the Crop Protection and Pest Control Branch of the Department of Agriculture is:

"to provide a service in protecting crops and domestic animals from insect and animal pests, and plant diseases and to provide for the proper management of agricultural chemicals".

Coyotes can present problems to some sheep farmers, but some of these problems could be avoided with good farm management. Sheep dogs, good fences and proper disposal of carcasses are three improvements that are badly needed. Coyotes too are often blamed for killings which were none of their doing. Sheep particularly are one of the most difficult of domestic livestock to raise for they die from many diseases and less obvious causes. The coyote then feeds on the carcass and is blamed for the kill.

A year ago a small group - "Coyote Concern" - was formed in the Okotoks-Priddis area to press for changes in the legislation to give some protection to the coyote. The Government of Alberta is now saying that some changes are "under consideration" but that the coyote will remain under the Department of Agriculture classed as an "agricultural nuisance".

The coyote is of great value of this province - ecologically, aesthetically and economically. Is it right that it should be under the control of a department who, because of their service to a small portion of the agricultural community, can only regard it as a "nuisance"? Obviously there will always be a conflict of interest.

If you feel as concerned as we do about the lack of protection for the coyote in Alberta you may like to help. A personal letter to the Minister of Agriculture asking that the control of the coyote be relinquished to the Department of Recreation, Parks and Wildlife would be most effective. A telephone call to

your MLA is also important. Whichever way you choose, you will be helping to convince the Government that the people of Alberta are concerned about the management of the coyote.

Addendum

Due to province-wide pressure from the public the government has now been able to institute hunting regulations regarding the coyote. Whereas in the past it was afforded no protection at all in the agricultural areas of the province the new 1978 regulations now read as follows:

> "An owner or occupant of private land may hunt Coyote at any time of year, without a licence on his privately owned land or he may obtain a Damage Permit from the Fish & Wildlife Division and designate specified individuals to hunt Coyote on such land after the close of the Coyote season.
>
> A resident may hunt Coyote on any land to which he has right of access from November 1, 1978 to February 28, 1979 if he holds a current big game licence.
>
> It is unlawful to hunt coyote or fox with the use of dogs unless the person is the holder of a permit issued by the Fish & Wildlife Division".

These regulations still leave the farmers free to control problem coyotes on their own land and they do not interfere with the legitima fur harvest. They do, however, afford some protection from indiscrim inate killing during eight months of the year.

Unfortunately these regulations are not necessarily permanent, they d not constitute a change in the Wildlife Act and they can be rescinded at any time by an order in council. The status of the coyote remains the same - an "agricultural nuisance" under the jurisdiction that thi is the first step in providing good management of one of our most misunderstood predators.

GREAT CRESTED FLYCATCHER NEAR DUNSTABLE, ALBERTA

By Virginia Lang
R.R. #1, Busby, Alberta

On June 12, 1978, a Great Crested Flycatcher briefly visited my farm 3½ miles north and 1 mile east of Dunstable, Alberta. The bird, perching conspicuously and singing loudly and frequently, was present for about twenty minutes in a one-acre stand of mature poplars bordered by mature spruce trees. It most frequently perched on unleafed branches 5 to 6 m above the ground.

To my knowledge, Great Crested Flycatchers have only been reported northwest of Edmonton in the Lesser Slave Lake area prior to this observation.

HIGHLIGHTS OF SPRING BIRD MIGRATION, SOUTHERN ALBERTA - 1978

by Rudi Butot
81 Capri Ave., N. W., Calgary, Alta T2L OG9.

In March spring arrived, marked by chinooks which had been absent during January and February, and a lack of precipitation - the month was one of the driest ones on record. However, with the lengthening days the snow began to melt and the arrival of the first spring migrants was noted. April brought some unsettled weather, and heavy snowfall in the middle of the month slowed down bird migration. The precipitation did help replenish the low water levels of the last few years, and many potholes and depressions filled with water. During May precipitation was higher than usual.

1978 spring bird migration in southern Alberta was marked by few deviations from "first arrival" dates of previous years, and relatively few reports of uncommon or rare bird species.

Some Canada Geese wintered in southern Alberta, and the Snow Goose migration went by essentially unnoticed - the first few were reported from Welling on 31 March, and some were seen near Balzac on 14 May. Ten to twenty Ross' Geese were sighted near Sterling on 2 April. The Pintail migration, singularly unspec-

tacular this year, began with the first ones seen in a flooded field near Pekisko on 19 March while the rest of the prairie was still in the grip of snow and ice.

Highlights among raptors included a Turkey Vulture reported from Calgary on 2 May and two Peregrine Falcons - always noteworthy - in central Alberta at Beaverhill Lake on 22 May.

Common Snipe seemed especially numerous this year, and often six or more could be seen within a short distance. A Whimbrel was reported from Conrich on 6 May. Thirty Ruddy Turnstones were sighted at Beaverhill Lake on 22 May, as were a similar number of Red Knots. A rare spring sighting of a Sharp-tailed Sandpiper was made there on 23 May, as well. Six Hudsonian Godwits were seen near Keoma on 30 April, and a Parasitic Jaeger was reported from near Cochrane on 31 May.

Flycatchers, swallows and wrens arrived more or less "on schedule" this spring, as did Vireos and warblers, highlighted by a Nashville Warbler which was reported from Seebe on 19 May.

Eight Bobolink were reported from near Shepard on 6 June, and 5000 Lapland Longspurs were reported from near Cheadle on 23 April.

More detailed tabulations for the spring period can be found in the spring and early summer issues of The Calgary Field Naturalist.

OVERHEARD (85)

The End of a Research Project:

"Research cannot be considered complete until its findings are presented in the literature".

Lorraine C. Smith, 1976
Canadian Field-Naturalist 90: 101.

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compiled by David Ealey
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Morck, K. 1978. Insect galls. Calg. Field Natur. 9(9): 246-248.

Salt, W.R. 1978. Another record of the Eastern Bluebird in Alberta. Calg. Field Natur. 9(7): 194.

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LETTERS TO THE EDITOR

"In 'letters to the editor' in the March, 1978, issue of the Alberta Naturalist, Daniel Brunton of Canmore, Alta, took exception to the article by K. Wood concerning Starlings, House Sparrows and Magpies. In my opinion, Magpies are every bit the villain they are made out to be. You have only to live on a farm and see newborn animals with eyes picked out and cows with sores on their backs to say nothing about the birds nests that are destroyed, to realize that much of what is said about them is true.

I don't agree that one has to be an extremist to be a Naturalist.

As for his statement "animals are animals are animals, Period", would he also say to a gardener who pulls weeds from his garden, that plants are plants are plants, Period?"
-- Ellen Craig, R.R.#1, Wembley, Alberta TOH 3SO.

FROM THE EDITOR

The AN continues to be late, and we continue to try to find ways to speed up the typing and printing processes. In an effort to cut down production time of this issue, I typed the major articles, leaving only short material for the already over-worked typist at the Percy Page Centre. The problem will be further discussed at the September FAN meeting, and, with any luck, resolved.

OVERHEARD (86)

Preservation needs:

"To maintain open space we need stringent planning controls, we need greater protection for the rural landowner, and we must locate and identify ecologically sensitive areas".

M.D. Kirk, 1975
"No trespassing", p. 17.

CLUB NEWS

Bow Valley Naturalists

The Bow Valley Naturalists have had a busy year and are actively involved in several projects at the present time.

In December of 1976 we undertook a comprehensive project to study a valuable wetlands area west of Banff Townside known as the Vermilion Lakes. Through our field and library research we have amassed quite a volume of data including species lists on plants, birds, and mammals. We are currently in the process of getting together a publication on this area and hope to have it available soon.

We are also currently preparing our third annual "State of the Park" brief, through which we present our concerns regarding Banff National Park to Parks Canada.

Two current controversial issues which are of major concern to the Bow Valley Naturalists are the Kananaskis Country proposals and the planning for the Lake Louise Visitor Centre. FAN members will have a chance to see the Kananskis area during the summer outing July 22nd and 23rd. Input to the planning process on Lake Louise will be accepted by Parks Canada throughout the summer. We encourage all member clubs and individuals to submit ideas to this process. Submitted by Margie McDougall.

Lethbridge Naturalists Society

The Lethbridge Naturalist Society have had a very active year since our new president, Duncan Mackintosh took office in November. For the first time, this year we have had a brochure printed which we can leave in public places with the hope of encouraging new members to join our club. It sets out our purpose and lists our summer programme.

Our special club projects include the Bluebird Trail, the Goose Nest Development Project and a new Bird identification service which has

proven to be very popular this spring. We have placed over one hundred bluebird nest boxes around S. Alberta. Some members are digging holes in the Oldman River sandstone cliffs in hopes of increasing the falcon and goose population. This is being done under the guidance of the Canadian Wildlife Service and will be an ongoing programme with sites checked and more holes dug yearly.

We presented a brief at the hearings on Forestry Operations in Alberta in March and were represented by a number of members at the Water Conference held in November.

Our main concerns have been the Milk River/Lost River area, the Akimina/Kishenina area and the Oldman River drainage basin.

Edmonton Natural History Club

The E.N.H.C. is exploring with the Waskahegan Trail Association and the N.A.P.P.A.C. the possibility of having a joint newsletter. This would 1) assist with the rapidly increasing costs of publishing and 2) assist in promoting co-operation between clubs with similar interests and objectives. The explorations between club executives have reached the stage of appointing an Editor-in-chief who will meet with the newsletter Editors to work on the details of layout. Printing costs, when working with the many memberships, are greatly reduced which is an encouragement to all to keep on trying to make this co-operative venture work for at least a trial year. Submitted by Pat Clayton.

Red Deer River Naturalists

The club co-sponsored a public meeting with Parks Canada regarding the Lake Louise developments. A wide variety of community groups and varied interest groups were invited. A busy summer program of field trips is now underway.

OVERHEARD (87)

Beetles under his toes

"Without a net it is very difficult to capture these wary insects, though I have caught them with hats, strainers, my hands, and even my toes".

John H. Acorn, 1976. Edmonton Naturalist 4:234.

CONSERVATION NEWS

Saskatchewan Land Drainage Legislation

The Saskatchewan government is formulating legislation to establish local watershed commissions which will have powers to deal with private land drainage of farmland. Agriculture Minister Edgar Kaeding says the government has not decided whether to introduce the land drainage legislation now or whether to wait and introduce it with a package of drainage and flood control programs which will be finalized later this year. Kaeding cautions farmers that the watershed commissions will have the right to issue back orders to close ditches or have remedial work undertaken on private land draining. Submitted by Jim Minty.

Canadian National Parks Conference

The second Canadian National Parks: Today and Tomorrow conference, to be known as "Conference II: Ten Years Later", is to be held at the Banff Centre, Banff, Alberta from October 8 to 13, 1978.

The purpose of the conference is to examine progress and problems in the establishment, planning management and use of national parks and related reserves in the decade since the first Canadian National Parks: Today and Tomorrow conference was convened in Calgary in 1968. The conference also will address itself to desirable strategies and guidelines for future policy and practice.

During the decade 1968-1978 there have been dramatic changes in the numbers and types of national parks and related reserves, and it has been a period of considerable change in terms of institutional and public attitudes towards the value and the role of parks and other categories of conservation, recreation and heritage areas.

About forty papers are being prepared for Conference II, the authors drawing upon their experience in Canada and in several other countries. The papers are to be presented in abbreviated form at plenary sessions which include "Setting the Stage", "Parks Canada Activities", "Uses of National Parks and Related Reserves". "Other Alternatives", "Indigenous Use of National Parks and Related Reserves", "International Perspectives", "People and Technology in National Parks and Related

Reserves", and "The Future". All persons interested in the subject matter are invited to register for the conference. A considerable amount of time will be available for delegate participation in all sessions of the conference.

A large number of organizations will exhibit during the conference. A field trip is planned for delegates. The papers and proceedings of the conference will be published in 1979. The conference registration fee is $48 and the banquet ticket costs $15. Further details regarding registration are available from Mr. John R. Amatt, Manager, Environmental Programs, The Banff Centre, Box 1020, Banff, Alberta TOL OCO. (Telephone (403) 762-3391).

NOTES AND NEWS

To All member clubs of FAN

Nominations are invited for the 4th Annual Loran L. Goulden Memorial Award for outstanding work on the natural history of Alberta. Nominees need not reside in Alberta, but the work recognized must have been conducted within the province. Amateurs and professionals who make special efforts to encourage amateurs will be given priority in selection of the awardee. Nominations must reach the chairman of the selection committee by 1 December 1978 for consideration for the 4th award, but nominations are welcomed at any time for consideration in future awards. The awardee will be notified in late December, and the award presented at the Annual General Meeting of the Edmonton Natural History Club in January 1979. Previous awardees were Dick Dekker and Prof. W. Ray Salt of Edmonton, and Dr. Charles D. Bird of Calgary.

Nominations should be sent to Martin K. McNicholl, c/o Beak Consultants Ltd., 3530 11A St. N.E., Calgary, Alberta T2E 6M7.

Rare Plant List for Alberta

The Rare Vascular Plants of Alberta, by George W. Argus and David J. White, has just been published by the National Museum of Natural Sciences in Ottawa. According to the list there are 308 species of vascular plants that qualify as candidates for rare plant status in Alberta. Some of these plants may require protection in order to

insure their continued existence. The list is based on the best available information, but all of the listed species should have their rare status confirmed by detailed mapping and field-checking. The cooperation of all naturalists and botanists is needed in this work.

The list contains those vascular plants that occur either in a small geographical area within Alberta or which occur sparsely over a wide area. For each plant the following information is given: references supporting its inclusion on the list, its distribution in North America, its detailed distribution in Alberta, references to distribution maps, its habitat, its rare and endangered status elsewhere in Canada and in the United States, and the legal protection that is given to the plant in North America.

Copies of the list may be obtained free of charge by writing to: The Rare and Endangered Plants Project, National Museum of Natural Sciences, Botany Division, Ottawa, Ontario K1A OM8.

Canadian Amphibian and Reptile Conservation Society

When in London, Ontario at the end of May I had the opportunity to attend the local natural history club, the McIlwraith Club, and also view some of the natural areas around the city on a field trip. Guest speaker at the club meeting was Craig Campbell, President of the Canadian Amphibian and Reptile Conservation Society who talked on some of the rare or threatened reptiles and amphibians of Ontario. In discussions with him I learnt that they lack Alberta members in their society and would welcome members from our area. They publish a bimonthly Bulletin; membership is $2.00 a year and should be sent to Mr. R.V. Palermo, Secretary-Treasurer, 1599 Coram Crescent, Mississauga, Ontario L4X 1L1.

John M. Powell.

Hypothermia Workshop

A hypothermia workshop developed specifically for outdoor enthusiasts and people providing first aid is scheduled for Saturday, October 28, in the Orange Theatre of Health Science Centre, University of Calgary,

1611 - 29 St., N.W., Calgary. Speakers will discuss: Body Temperature and Its Regulation; Cross Country Skiing and Hypothermia; Cold Water Survival and Hypothermia; Effects of Cold Water Immersion; Frostbite Management; Wilderness Survival; and Rescue Problems. Registration fee, $20. Contact Jocelyn M. Lockyer, Admin. Assistant, Division of Continuing Medical Education, Faculty of Medicine, University of Calgary, or phone 284-7240 for further information.

OVERHEARD (88)

Noisy Birds

"Anti-noise bylaw nails the birds - a hastily prepared municipal bylaw in Lakefield, Ontario prohibits birds from singing for more than 30 minutes from 10 p.m. to 8 a.m. and for more than 15 minutes from 8 a.m. to 10 p.m. The bylaw now being re-written after some embarassment to the town council, was requested by local residents concerned about noise and loitering in the community".

from Manitoba Naturalists Society Bulletin, November 1976: 7.

OVERHEARD (89)

Our Role

"The impact we have on our environment is set by the way we live. Obviously our high standard of living with cars, airplanes, single family houses, and our use of disposable items, means we use more resources than people in countries where cars and disposable items are luxeries enjoyed by the few".

Anonymous, 1976
Environment News 5(1): 9.

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Deadlines for submission of material are: January 15, April 15, July 15, and October 15. Please include your address. All maps and charts should be submitted on white paper, of the appropriate size for publication, preferably typed or in india ink. Black and white slides, photographs or drawings are welcomed.

FAN membership fees are: regular--$4.00 per year; supporting--$10.00 or more per year, with the excess over $4.00 being deductible from taxable income. Mail remittance to: Federation of Alberta Naturalists, Box 1472, Alberta T5J 2N5. All members now contribute to Bucks for Wildlife, as FAN now contributes $1.00 of each membership fee to this fund.

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Send to:

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Box 1472, Edmonton, Alberta T5J 2N5.

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